#### **REMARKS/ARGUMENTS**

By this Amendment, claim 21 is amended and claim 39 is canceled. Claims 21, 24-38 and 40 are pending.

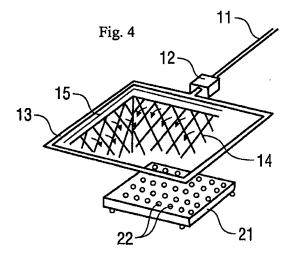
Favorable reconsideration is respectfully requested in view of the foregoing amendments and the following remarks.

## <u>Indefiniteness Rejection of Claim 24</u>

Claim 24 stands rejected as being indefinite under 35 U.S.C. § 112, second paragraph, in its recitation of the expression "substantially grid-shaped". This rejection is respectfully traversed.

The expression "substantially grid-shaped" is not specifically defined in the specification, but its meaning is clearly suggested by Ref. No. 14 of Fig. 4 (depicted below). The meaning is

further informed by the conventional definition of the term "grid" as "a network of uniformly spaced horizontal and perpendicular lines [or] something resembling such a network" (see Webster's Ninth New Collegiate Dictionary, p. 537, Merriam-Webster pub., 1985, attached). A person having ordinary skill in the art (a PHOSITA) would readily understand from Fig. 4 and the conventional definition of "grid" that a "substantially grid-shaped" inner wall is a wall



comprised of a network of linear members divided into two groups: (1) a first group of approximately parallel linear members spaced apart approximately equally; and (2) a second group of approximately parallel linear members spaced apart approximately equally, wherein the first group members and the second group members intersect each other at an approximately constant angle. Fig. 4 makes it clear that "substantially grid-shaped" is not limited to linear members that are horizontal, vertical and/or perpendicular to each other.

Accordingly, reconsideration and withdrawal of the indefiniteness rejection of claim 24 are respectfully requested.

#### Rejections under 35 U.S.C. § 103

Claims 21, 24, 35 and 40 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over U.S. Patent No. 6,044,648 (Rode) in view of U.S. Patent No. 3,595,030 (Roslonski). Claims 25 and 26 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Rode in view of Roslonski further in view of U.S. Patent No. 4,481,779 (Barthel). Claim 27 and 28 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Rode in view of Roslonski further in view of U.S. Patent No. 3,618,336 (Palma). Claim 29 and 30 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Rode in view of Roslonski further in view of U.S. Patent No. 5,601,143 (Binder). Claim 31-34 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Rode in view of Roslonski further in view of U.S. Patent No. 5,976,871 (Walker et al.). Claim 36, 38, and 39 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Rode in view of Roslonski further in view of U.S. Patent No. 6,845,628 (Weng). Claim 37 stands rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Rode in view of Weng further in view of U.S. Patent No. 5,546,756 (Ali). These rejections are respectfully traversed.

# Features of the Claimed Invention

The present invention is based on the technical recognition that conventional cooling equipment using liquid cooling agents suffer from the presence of cooling agent lakes at the bottom of the cryovat. These lakes in conventional cooling equipment cause several problems as explained in the introductory portion of the description at pages 1 and 2. Firstly, the temperature constancy and temperature distribution inside the vat is unsatisfactory. Further, the protective bell can mist over on account of the cooling agent outgasing from the lakes at the bottom of the cryovat. Further, the temperature inside the cryovat cannot be adjusted or can only be adjusted with difficulty by changing the amount of liquid cooling agent introduced into the vat.

The invention provides cooling equipment which avoids the creation of cooling lakes at the bottom of the cooling space, and the problems associated therewith. Base claim 21 has been amended to specifically recite this aspect of the invention, which was previously claimed in claim 39.

Base claim 21 also specifies that the cooling agent supply line empties into the intermediate space between the inner wall and the outer wall and introduces the cooling agent in

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<u>liquid</u> form <u>into</u> the porous buffer material of the intermediate space. Support for this limitation is apparent in the specification at, e.g., page 3, lines 6-26.

# Rode Emits Gaseous, not Liquid Refrigerant

Rode pursues a different technical concept for improving the uniformity of product cooling by vaporizing all of the liquid refrigerant <u>inside a coil</u> (see Rode at, e.g., column 1,

lines 59-62). Fig. 3 of Rode (cited in the Office Action and depicted at right) discloses an embodiment in which fan 54 circulates a cooling agent emitted from a cooling agent supply line (tube 66) through the intermediate space (plenums 56, 58, 60) and into the cooling space (chamber 50). Refrigerant is introduced into the cooling space (chamber 50) from the cooling agent supply line in a gaseous form (see, e.g., column 3, lines 2-5).

Thus, Rode does not disclose the introduction of the "cooling agent in liquid form into the porous buffer material of the intermediate space" as specified in base claim 21. Rode is furthermore irrelevant to the problem of lakes of liquid cooling agent formed at the bottom of the cooling space, which is addressed by the present invention.

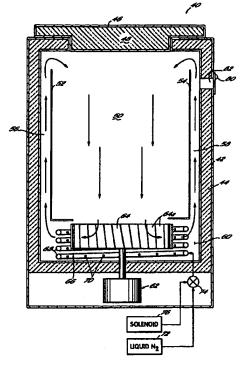


FIG. 3

# Roslonski Teaches Wrong Cooling Agent Flowing the Wrong Way

Roslonski discloses a cooling apparatus in which a gaseous cooling agent is emitted from the cooling agent supply line ("tubing 15"), and exits the cooling space ("inner compartment 22") through holes 36 into the intermediate space ("outer compartment 32"). See Roslonski at Fig. 2 and column 2, lines 33-40 and 53-65.

Thus, the direction of the flow of the cooling agent in Roslonski is from the cooling space into the insulating material of the intermediate space, which is the opposite of what is claimed by Applicants.

Moreover, Roslonski does not use a liquid cooling agent, but rather uses a gaseous refrigerant (see, e.g., Roslonski at column 1, lines 49 and 72, and column 2, line 35). Therefore,

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Roslonski, like Rode, is irrelevant to the problem of lakes of liquid cooling agent formed at the bottom of the cooling space, which is addressed by the present invention.

### Improper Combination of Incompatible Teachings

A PHOSITA would not have been motivated to incorporate the porous buffer material of Roslonski in the intermediate space (i.e., plenums 56, 58, 60) of Rode with a reasonable expectation of success. A PHOSITA would have expected the porous buffer material of Roslonski to block the air circulation path (i.e., the flow of gaseous cooling agent from tube 66 through plenums 56, 58, 60, and into chamber 50, which is facilitated by fan 62), which is essential to the teachings of Rode. See, e.g., the Summary of the Invention of Rode at column 1, lines 36-58. A PHOSITA would have expected the proposed modification to the teachings of Rode to result in a device ineffective for rapidly cooling items in the chamber. As noted in *McGinley v. Franklin Sports Inc.*, 60 USPQ2D 1001, 1010 (Fed. Cir. 2001):

If references taken in combination would produce a "seemingly inoperative device," we have held that such references teach away from the combination and thus cannot serve as predicates for a prima facie case of obviousness. *In re Sponnoble*, 405 F.2d 578, 587, 160 USPQ 237, 244(CCPA 1969) (references teach away from combination if combination produces seemingly inoperative device); see also *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127(Fed. Cir. 1984) (inoperable modification teaches away).

In addition, Rode and Roslonski teach the provision of gaseous cooling agents in the cooling space, and are therefore irrelevant to the problem of lakes of liquid cooling agent formed at the bottom of the cooling space, which is addressed by the present invention. A PHOSITA would have lacked motivation to consult or combine this non-analogous art to address the problems addressed by the invention.

## Proposed Combination Does Not Meet All Claimed Features

The proposed combination of reference teachings fails to disclose or suggest the introduction of the cooling agent in <u>liquid form</u> into the porous buffer material of the intermediate space.

None of the additional reference teachings can be properly combined to remedy the aforementioned deficiencies of Roslonski and/or Rode, and therefore the claimed invention is not obvious in view of the cited art.

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Accordingly, reconsideration and withdrawal of the obviousness rejections are respectfully requested.

For at least the reasons set forth above, it is respectfully submitted that the aboveidentified application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are respectfully requested.

Should the Examiner believe that anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

CAESAR, RIVISE, BERNSTEIN, COHEN & POKOTILOW, LTD.

 $\mathbf{B}\mathbf{y}$ 

David M. Tener Registration No. 37,054 Customer No. 03000

(215) 567-2010

Attorneys for Applicants

March 25, 2009

Please charge or credit our Account No. 03-0075 as necessary to effect entry and/or ensure consideration of this submission.

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